# Complete Summary

## GUIDELINE TITLE

The American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement on the diagnosis and management of primary hyperparathyroidism.

## BIBLIOGRAPHIC SOURCE(S)

AACE/AAES Task Force on Primary Hyperparathyroidism. The American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement on the diagnosis and management of primary hyperparathyroidism. Endocr Pract 2005 Jan-Feb;11(1):49-54. [31 references]

## GUIDELINE STATUS

This is the current release of the guideline.

## COMPLETE SUMMARY CONTENT



## SCOPE

### DISEASE/CONDITION(S)

Primary hyperparathyroidism

### GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

### CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine
Surgery

## INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

To assist health-care professionals in medical decision making related to the diagnosis and management of primary hyperparathyroidism

## TARGET POPULATION

Patients with suspected or confirmed hyperparathyroidism

## INTERVENTIONS AND PRACTICES CONSIDERED

### Diagnosis/Evaluation

1. Serum calcium measurement
2. Immunoassay of the intact parathyroid hormone
3. 24-hour urinary collection for calcium and creatinine excretion
4. Bone density screening

### Management/Treatment

1. Operative management (parathyroidectomy) including
    - Preoperative localization by $^{99m}$Tc-sestamibi scanning with use of single-photon emission computed tomography
    - Use of intraoperative measurement of circulating intact parathyroid hormone
    - Use of improved resolution of ultrasound examinations
2. Medical management including
    - Diuresis
    - Estrogen replacement therapy in postmenopausal women
    - Bisphosphonates
    - Cincalcet

    Note: No convincing data support the long-term efficacy of medical therapy. Parathyroidectomy is the only curative therapy for primary hyperparathyroidism.

## MAJOR OUTCOMES CONSIDERED

- The consequences of untreated primary hyperparathyroidism
- Benefits, efficacy, and risks of operative management
- Serum parathyroid and calcium levels

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

### NUMBER OF SOURCE DOCUMENTS

Not stated

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

### METHODS USED TO ANALYZE THE EVIDENCE

Review

### DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

### DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Authors are medical and surgical authorities on hyperparathyroidism who achieved consensus opinion.

### RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

### COST ANALYSIS

The guideline developers reviewed published cost analyses.

After several years of follow-up, the costs of monitoring and medical management of patients with primary hyperparathyroidism who do not undergo surgical treatment have been shown to surpass the costs for patients who undergo successful surgical treatment.

### METHOD OF GUIDELINE VALIDATION

Peer Review

### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

#### Consensus Guidelines for Recommendation of Surgical Treatment

Operative management is clearly indicated for all patients with classic symptoms or complications of primary hyperparathyroidism (PHPT). The recommendation of surgical treatment for seemingly asymptomatic patients with PHPT, however, remains controversial. Although the benefits of successful operative management are recognized in terms of correcting the disordered calcium metabolism in the preponderance of patients undergoing parathyroidectomy, concern remains about exposing such patients to the risks of operation (albeit low) for a disease that may be minimally problematic for at least half of them.

A consensus conference organized by the National Institute of Health (NIH) in 1990 attempted to define a rational basis for recommending parathyroidectomy for asymptomatic patients. A follow- up conference of the NIH and the National Institute of Diabetes and Digestive and Kidney Diseases in 2002 recommended parathyroidectomy for the following patients: (1) those <50 years of age, (2) who cannot participate in appropriate follow-up, (3) with a serum calcium level >1.0 mg/dL above the normal range, (4) with urinary calcium >400 milligrams/24 hours, (5) with a 30% decrease in renal function, or (6) with complications of PHPT, including nephrocalcinosis, osteoporosis (T-score <2.5 standard deviation (SD) at the lumbar spine, hip, or wrist), or a severe psychoneurologic disorder.

Other authorities have recommended more liberal guidelines in managing PHPT based on the inability to determine predictably whether complications or progression of the disorder will develop in a specific patient. Furthermore, long-term follow-up of patients with PHPT not treated surgically is time-consuming, costly, and unacceptable to many patients. Such patients must avoid dehydration and excessive calcium intake. The most common evolving sequelae of PHPT in asymptomatic patients include ongoing bone loss, nephrolithiasis, and renal colic. In addition, patients with PHPT are at risk for indolent cardiovascular complications with left ventricular hypertrophy, neurobehavioral impairment, and associated diminished quality of life. Hypercalcemia also complicates the management of other medical problems, such as congestive heart failure. Living with PHPT as a long-term metabolic disorder with a potential for multiple

associated health problems may be unacceptable for many patients when a straightforward durable surgical cure can be readily achieved in most cases. In this context, we believe that operative management should be considered and recommended for all asymptomatic patients with PHPT who have a reasonable life expectancy and suitable operative and anesthesia risk factors. Consultation with an experienced endocrinologist and surgeon can help clarify the patient's risk-to-benefit ratio in this regard.

#### Conclusions and Recommendations

PHPT remains a relatively common disorder of calcium metabolism that is readily cured by a low-risk operation in 95 to 98% of patients when performed by a qualified surgeon. Operative management is the treatment of choice for all symptomatic patients and all asymptomatic patients younger than age 50 years or for patients who cannot participate in adequate medical follow-up. Operative management should also be considered for all other asymptomatic patients with suitable risk and a reasonable life expectancy.

### CLINICAL ALGORITHM(S)

None provided

## EVIDENCE SUPPORTING THE RECOMMENDATIONS

### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

## BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

### POTENTIAL BENEFITS

#### Benefits of Operative Management

- Surgical removal of a solitary parathyroid tumor or subtotal resection of all pathologic parathyroid tissue in patients with hyperparathyroidism (HPT) results in normalization of parathyroid hormone (PTH) secretion, normalization of serum calcium levels, and a durable cure.
- Recent surgical advances include the ability to perform focused resection of preoperatively imaged enlarged parathyroid glands by means of a limited neck dissection, with use of small incisions of 2 to 3 cm (minimally invasive parathyroidectomy).
- The increased availability of intraoperative parathyroid hormone assessment to document completeness of operative resection is helpful and enables more patients to undergo focused resection through small incisions with greater certainty of cure and less postoperative pain and discomfort.
- Operative cure rates of 95 to 98% with complication rates of 1 to 2 % are possible when parathyroidectomy is performed by experienced surgeons.

- Parathyroidectomy reverses accelerated bone mineral loss, diminishes future risk for renal calculi, increases the left ventricular myocardial index, improves muscle strength, decreases neurological symptoms, and decreases the risk of premature death.

### POTENTIAL HARMS

#### Complications of Surgery

Serious complications consist of recurrent laryngeal nerve injury, persistent or recurrent hyperparathyroidism (HPT), permanent hypoparathyroidism, and bleeding. Mortality from operative intervention is extremely low. The main causes of operative failures are multiglandular disease, ectopic or supernumerary parathyroid glands, parathyroid cancer, and surgical inexperience.

#### Disadvantages of Medical Treatment

Long-term follow-up of patients with primary hyperparathyroidism not treated surgically is time-consuming, costly, and unacceptable to many patients.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

No convincing data support the long-term efficacy of medical therapy or simply observation in the management of primary hyperparathyroidism.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better
Living with Illness

### IOM DOMAIN

Effectiveness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

AACE/AAES Task Force on Primary Hyperparathyroidism. The American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement on the diagnosis and management of primary hyperparathyroidism. Endocr Pract 2005 Jan-Feb;11(1):49-54. [31 references]

## ADAPTATION

Not applicable: The guideline was not adapted from another source.

## DATE RELEASED

2005 Jan-Feb

## GUIDELINE DEVELOPER(S)

American Association of Clinical Endocrinologists - Medical Specialty Society
American Association of Endocrine Surgeons - Medical Specialty Society

## SOURCE(S) OF FUNDING

American Association of Clinical Endocrinologists (AACE)

## GUIDELINE COMMITTEE

AACE/AAES Task Force on Primary Hyperparathyroidism

## COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

## GUIDELINE STATUS

This is the current release of the guideline.

## GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American Association of Clinical Endocrinologists (AACE) Web site.

Print copies: Available from the American Association of Clinical Endocrinologists (AACE), 1000 Riverside Avenue, Suite 205, Jacksonville, FL 32204.

## AVAILABILITY OF COMPANION DOCUMENTS

None available

## PATIENT RESOURCES

None available

## NGC STATUS

This NGC summary was completed by ECRI on May 18, 2005. The information was verified by the guideline developer on August 4, 2005.

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